

Chapter 584**Surface Water Quality Criteria for Toxic Pollutants**

SUMMARY: This rule establishes ambient water quality criteria for toxic pollutants in the surface waters of the State. The rule also sets forth procedures that may be used to determine alternative statewide criteria or site-specific criteria adopted as part of a licensing proceeding.

1. **Criteria and Applicability.** The ambient water quality criteria established by this rule are applicable to all surface waters of the State. These criteria are intended to prevent the occurrence of toxic pollutants in toxic amounts as prohibited by both the US Clean Water Act and State law and protect aquatic life and human health. Aquatic life criteria are intended to assure that toxic pollutants are not present in concentrations or amounts that would cause acute and or chronic adverse impacts on organisms in, on or using the surface waters. Human health criteria are intended to assure that toxic pollutants are not present in concentrations or amounts that would cause adverse impact to persons who eat organisms or drink water taken from the surface waters. In the case of marine waters the consumption of water will not be considered for application of human health criteria.
2. **Narrative Water Quality Criteria.** Except as naturally occurs, surface waters must be free of pollutants in concentrations which impart toxicity and cause those waters to be unsuitable for the existing and designated uses of the water body.
3. **Numerical Water Quality Criteria**

A. Statewide Criteria

- (1) Statewide Criteria for toxic pollutants with national water criteria. Except as naturally occur, levels of toxic pollutants in surface waters must not exceed federal water quality criteria as established by USEPA, pursuant to Section 304(a) of the Clean Water Act, or alternative criteria established below.

Statewide criteria are contained in Appendix A of this rule.

- (2) Alternative Statewide Criteria. Alternative statewide criteria must be adopted through rulemaking. Alternative statewide criteria must be based on sound scientific rationale and be as protective as EPA's water quality criteria. Such criteria must also be protective of the most sensitive designated and existing uses of the water body, including, but not limited to, habitat for fish and other aquatic life, human consumption of fish and drinking water supply after treatment. A proposal for alternative statewide criteria must be initiated in accordance with petition for rulemaking provisions of the State Administrative Procedures Act, 5 M.R.S.A., Section 8055, and include a thorough literature search of the properties of the toxicant, including but not limited to its toxicity, carcinogenicity, teratogenicity, mutagenicity, bioaccumulation/bioconcentration, and regulation by other states or foreign countries. Any such proposal must also take into consideration, at a minimum, the following:
 - (a) Aquatic Life Criteria. Physical, chemical or biological conditions found in Maine waters that differ from the information used as the basis for national criteria from the USEPA. When toxicity testing is to be done, the procedures in 3(B)(1) will be used. Ambient data must be collected in general

conformance with Chapter 530, section 4(D) and have sufficient geographic distribution to reflect variation of the characteristics in question. Where discharges may affect the factors used to determine water quality criteria, significant sources representative of the pollutant, characteristics and geographic distribution will be evaluated as part of a proposal.

- (b) Human Health Criteria. Changes to statewide criteria for the protection of human health must be supported by information following the general methods and considerations specified by USEPA in "Revisions to the Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health (2000)," EPA-822-B-00-004, USEPA, Office of Science and Technology, Washington, D.C., 65 Federal Register No. 214, pp. 66443-66482, November 3, 2000. The Board shall consider this information and information provided by the Department of Human Services.

The Board may request additional materials and shall consider all relevant information when determining whether to adopt alternative statewide criteria.

- (3) Statewide criteria for toxic pollutants lacking national criteria. The requirements of section 3(A)(2) also apply to the adoption of criteria for toxic pollutants not having water quality criteria established by USEPA, pursuant to Section 304(a) of the Clean Water Act.

B. Site-Specific Criteria. Site-specific numerical criteria for a toxic substance reflecting specific circumstances different from those used in, or not considered in the derivation of the statewide criteria, or for toxic pollutants lacking national criteria, must be adopted by the Board only as part of a waste discharge license proceeding, pursuant to 38 MRSA Sections 413, 414, and 414-A. Site-specific criteria must be based on sound scientific rationale, be as protective as federal water quality criteria and must be protective of the most sensitive designated and existing uses of the water body, including, but not limited to, habitat for fish and other aquatic life, human consumption of fish and drinking water supply after treatment.

Establishment of site-specific criteria must be initiated with a request that the Board assume jurisdiction for issuance of a license. Where the Department finds a request for site-specific criteria may affect other sources discharging to the same waterway, it may, pursuant to 38 MRSA, Section 414-A(5)(A), reopen for modification those licenses for consideration in the same proceeding. The information necessary to ensure that criteria are adequately evaluated must be submitted by a person requesting alternative criteria. The adequacy of this information shall be determined by the Board and may include, among other things, a literature search, user surveys and consumption rate calculations. A literature search of the properties of toxicants includes, but is not limited to, its toxicity, carcinogenicity, teratogenicity, mutagenicity, bioaccumulation/bioconcentration, and regulation by other states or foreign countries. Requests must provide information identifying specific uses of the water body in question, and any other relevant site-specific circumstance or information different from those used, or any not considered, in the derivation of the statewide criteria. Relevant information includes such things as sensitive or unique physical, chemical or biological conditions of the waterbody, rare or significant plant or wildlife communities and habitats located in the water body, or human populations having distinct uses or needs with regard to the water body.

Any request to the Board to establish site-specific criteria must also include, at a minimum, the following. A plan of study must be submitted to the Department for review and approval prior to the beginning of the studies, and may include the consideration of existing relevant scientific information as well as proposals for site-specific investigations.

(1) Aquatic Life Criteria

- (a) Minimum requirements include toxicity tests conducted generally according to the USEPA Water Quality Standards Handbook: Second Edition, EPA-823-B-94-005-a, USEPA, Office of Water, Washington, DC, August, 1994, and applicable Water-effect Ratio Guidance or other guidance for development of site specific criteria approved by the Department.
 - (b) For complex effluents with more than one potentially toxic pollutant, both dilution waters (receiving water and laboratory water) must be spiked with all pollutants present in the effluent in significant amounts, except the pollutant of interest, or the whole effluent at levels representative of the calculated receiving water concentrations at the appropriate design flow. Pollutants present in significant amounts relative to toxic levels must be determined by means of periodic testing within two years of submitting the plan of study to the Department. The pollutant of interest must be added at various concentrations bracketing the target concentration (the existing or anticipated criterion) to determine an appropriate site-specific criterion. This procedure must be repeated for each pollutant for which site-specific criteria are to be proposed.
 - (c) For discharges to freshwater, the water flea (*Ceriodaphnia dubia*) reproductive and survival test, and the brook trout (*Salvelinus fontinalis*), or other salmonid approved by the Department, survival and growth tests must be conducted. For discharges to marine waters, Mysid shrimp (*Mysidopsis bahia*) survival test, and the sea urchin (*Arbacia punctulata*) fertilization test must be conducted.
 - (d) Results should be based on measured concentrations.
 - (e) For heavy metal tests, the metal must be added in the form of inorganic salts of relatively high solubility, such as nitrate salts or in some cases, chloride or sulfate salts.
 - (f) Sufficient testing must be conducted to properly characterize seasonal variations and the water quality criteria of concern. Receiving water and effluent sampling must be representative of expected conditions and exclude periods of floods, storm events and abnormal operation of the discharge source.
- (2) Human Health Criteria. Persons requesting site specific criteria for the protection of human health must provide information following the general methods and considerations specified by USEPA in "Revisions to the Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health (2000)," EPA-822-B-00-004, USEPA, Office of Science and Technology, Washington, D.C., 65 Federal Register No. 214, pp. 66443-66482, November 3, 2000. The Board shall consider this information and information provided by the Department of Human Services. In determining if site specific criteria are appropriate, the Board shall first evaluate whether there is an identifiable population(s) using a water body whose use(s) is distinct from that

of the population considered when establishing the statewide criteria. If the Board identifies such a population, it shall consider activities or customs that would constitute a use of the water body substantially different in type or extent than that upon which statewide criteria are based. The Board shall consider, among other things, the following:

- (a) Studies designed and implemented to provide accurate information regarding the fact and extent of specific human activities that create a potential exposure to toxics in the water body, including such things as the rate of consumption of organisms, use of a water body as a drinking water supply, recreation in and on the water, and other specific uses of the water body established by local cultural or commercial practices;
 - (b) The importance of organisms affected by a toxic substance, taking into consideration their places in the food chain and the degree to which they are used or consumed by humans;
 - (c) Scientific evidence typically relied upon by experts in the field of toxicology showing the potential effect of a toxic substance in the discharge that is the subject of the licensing, on human health, given a particular established use of the water body; and
 - (d) Unique characteristics of the water body or organisms depending on it that effect exposure of humans to toxics in the water body.
4. **Risk levels.** For any pollutant believed to be carcinogenic, a risk level that would result, at most, in one additional cancer per one million people (risk of 1×10^{-6}) exposed to the carcinogen must be used in determining the human health criterion.
5. The following assumptions have been used to determine the statewide criteria contained in Appendix A of this rule.

A. Form of metals. All metals criteria must be considered as total metal.

NOTE: Persons may request that the Department express criteria for metals as the dissolved form by submitting the appropriate information to allow recalculation of relative toxicity using conversion factors and translator procedures published by EPA: "The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion", EPA 823-B-96-007, USEPA, Office of Water, Washington, DC, June 1996.

B. Ambient water physical characteristics. Fresh water quality must be calculated using a pH of 7.0, a temperature of 25 degrees Celsius, and a hardness of 20 mg/L. Marine water quality must be calculated using a pH of 8.0, a temperature of 20 degrees Celsius, and a salinity of 30 parts per thousand. Estuarine water quality must be calculated using a pH of 8.0, a temperature of 20 degrees Celsius and a salinity of 20 parts per thousand.

NOTE: These characteristics, however, may vary depending on the location of the discharge. The relative criteria for a pollutant subject to these considerations may be recalculated in any given licensing proceeding using the actual local ambient physical water characteristics. See Chapter 530.

- C. Human health assumptions.** Human health criteria are determined assuming consumption of 2 Liters of water and 32.4 grams of organisms per day taken from surface waters of the State by a person weighing 70 kg.

AUTHORITY: 38 MRSA Sections 341-D and 420

EFFECTIVE DATE: October 9, 2005 (06-096 Chapter 530.5 repealed and replaced by this rule and Chapter 530)